



The United States Environmental Protection Agency
is pleased to announce...

**The Proposed Plan for Cleaning Up Residential Soils
within the
Vasquez Boulevard & Interstate 70 Superfund Site
Denver, Colorado
May 2002**

This Proposed Plan describes the Environmental Protection Agency's (EPA's) and the Colorado Department of Public Health and Environment's (CDPHE's) preferred alternative for addressing public health risks from lead and arsenic found in the soil of residential yards within the Vasquez Boulevard & Interstate 70 (VB/I-70) Superfund Site. The VB/I-70 Site includes the Elyria, Swansea, Cole, and Clayton neighborhoods of Denver, Colorado and a small portion of Globeville. EPA is the lead agency for the Superfund activities at the site. CDPHE is the support agency.

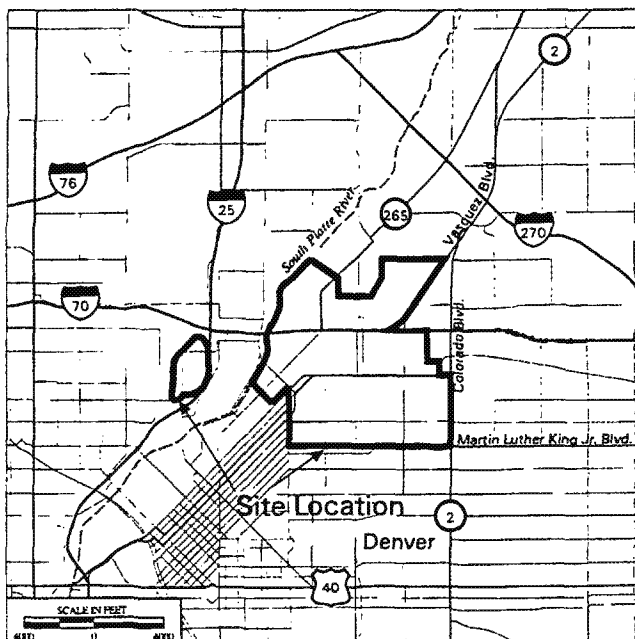
This fact sheet describes the cleanup alternative preferred by EPA and CDPHE for the VB/I-70 Site, and it explains why it is preferred. EPA's and CDPHE's preferred alternative, Alternative 4, is to remove the top 12 inches of soil from yards where arsenic levels exceed 128 parts per million (ppm) and/or lead levels exceed 540 ppm and dispose of the soil off the site at an appropriate facility. The soil will be replaced with clean soil and yards will be restored. EPA will make every effort to sample yards that have not yet been sampled and these yards will be cleaned up as necessary. A community health program will be established to protect children with soil pica behavior and children who may be at risk of exposure to lead from sources other than soil.

The VB/I-70 Site is an Environmental Justice (EJ) Site because the community is predominantly low income and minority and is disproportionately affected by environmental impacts from many sources including industry, other Superfund sites, and major transportation corridors. EPA and CDPHE took EJ concerns into consideration when selecting the preferred alternative.

**The public has 60 days to comment on this Proposed Plan: May 20 - July 19, 2002
During this time, send written comments to:**

The public can find detailed information on the VB/I-70 Site in EPA reports located in the information repositories listed on the last page of this fact sheet. One of EPA's responsibilities is to provide this opportunity for the public to comment on this Proposed Plan. During the comment period, comments may be submitted in writing by mail, email, or orally at the public meetings on June 20, June 22 and June 29, 2002. The last page of this fact sheet contains information about the public meetings. EPA encourages the public to review and comment on all the alternatives presented in this Proposed Plan. In the final cleanup decision, made after the comment period is over, EPA will consult with CDPHE and may modify the preferred alternative or choose a different alternative, based on public comments or new information.

**VB/I-70 Comments
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How did the VB/I-70 Site become a Superfund Site?

In 1998, CDPHE requested EPA's assistance in sampling residential yards in the Swansea and Elyria neighborhoods of Denver. EPA and CDPHE were initially concerned about the area because lead, gold, and silver smelters had operated in the vicinity in the early 1900's. After starting an investigation of the area, both agencies became aware of other potential sources of contamination including products containing arsenic and lead to control crabgrass and lawn pests that may have been used by residents in these neighborhoods and elsewhere.

Lead and arsenic are found naturally in soil. However, smelting activities and/or the use of lawn products containing arsenic and lead may have increased the levels of these substances in yards enough to pose a health risk to people who live in the area. EPA and CDPHE believed that sampling was necessary to determine the levels of metals currently in residential yards, schools and playgrounds.

In March 1998, EPA began a large soil sampling effort to gather information about the levels of metals in soils of residential yards. One soil sample was collected from the front yard and one soil sample was collected from the back yard of each property sampled. Samples were collected from yards in Swansea, Elyria, and the northern half of the Cole and Clayton neighborhoods. Based on the results of the 1998 sampling, EPA defined a study area that includes all of the Swansea/Elyria, Cole, and Clayton neighborhoods and a portion of Globeville. On July 22, 1999, EPA added all the residential yards in the study area that have elevated levels of arsenic or lead to the National Priorities List. This is a list of sites that are eligible for cleanup funding under EPA's Superfund program. The area became known as the VB/I-70 Superfund Site.

In August 1999, EPA began a new soil sampling program to collect more complete information on the levels of metals people may be exposed to throughout their entire yard. This required that many more soil samples be collected from each yard. Soil samples were collected from local schools and parks as well. EPA also took samples of indoor dust, garden vegetables, and garden soil from selected yards. EPA measured the levels of arsenic and lead in each sample. EPA completed this soil-sampling program in September 2000.

EPA measured the levels of 23 metals in selected soil samples from the VB/I-70 Site and determined that arsenic and lead are the metals most likely to be of human health concern in the residential soils at the VB/I-70 Site.

Soil Sampling Results

The VB/I-70 Site includes approximately 4000 residential yards. EPA sampled 3000 of these yards. EPA seeks the permission of property owners to collect samples from their yards. EPA was not able to get the permission of the property owners at 1000 yards even though two letters were sent and an EPA representative visited these homes at least twice. As part of the final cleanup, EPA will begin another sampling program that will target the 1000 un-sampled yards.

EPA's sampling found that yards with elevated arsenic levels occur randomly throughout the entire VB/I-70 Site. In many cases, a yard with higher levels of arsenic is located next to a yard where no arsenic was detected at all. EPA also found:

- The most commonly identified form of arsenic in soil is arsenic trioxide.
- Lead levels are, in general, slightly higher in the western neighborhoods of the site. However, similar to the arsenic pattern, properties with higher lead are sometimes near properties with little or no detectable amounts of lead.
- Levels of arsenic and lead are highest in the first two inches of soil and decrease with depth.
- Levels of arsenic in indoor dust are much lower than in soil. On average, arsenic levels in dust are about 6% of levels in soil.

- Levels of lead in indoor dust are lower than in soil. On average, levels of lead in dust are about 34% of levels in soil. However, in some houses, the amount of lead in dust is much higher than the amount of lead in soil.
- Levels of both arsenic and lead are lower in gardens than in yard soil. This might be because residents add fertilizers, compost, and other substances to gardens or because whatever caused the arsenic and lead to be in the yard did not equally affect the gardens.
- Lead and arsenic levels at area schools and parks are low and are not of concern to area children.

EPA findings indicate that the high levels of arsenic in yard soils may be the result of lawn care products applied to the yards. EPA is continuing to investigate the sources of arsenic and lead in soil.

In order to assure protection of children in VB/I-70, EPA immediately removed the soil from 48 yards and replaced it with clean soil. EPA completed this work in the fall of 2000. This Proposed Plan addresses the remaining yards where the levels of arsenic and lead in soil are not an urgent concern.

How are residents getting exposed to arsenic and lead in soil in these neighborhoods?

EPA considered all the possible ways people could come in contact with arsenic and lead in soil. These include getting soil on skin, breathing soil particles that have blown into the air, eating vegetables grown in a home garden, and swallowing soil particles that are on fingers or hands while eating, playing, gardening, or during other hand-to-mouth activity.

EPA also recognizes that some children intentionally eat non-food items. This unusual behavior is called "pica behavior". Some children with pica behavior may intentionally eat unusually large amounts of soil. This could be a health concern because soil can contain bacteria or other harmful substances. Nobody knows how many children exhibit soil pica behavior or how often, but it is thought to be rare. There are very few scientific studies available with information on soil pica behavior. Until better information is available, EPA makes assumptions about the amount of soil that pica children might eat and how often. EPA believes it is important to recognize this uncertainty and to consider how the arsenic and lead in soil at the VB/I-70 Site might affect the health of children with pica behavior.

EPA concluded that at the VB/I-70 Site, it is most important to look at the health risks to:

- children and long time adult residents who swallow soil and dust particles through routine hand-to-mouth contact during activities such as playing or working outdoors;
- children and long time adult residents who regularly eat garden vegetables grown in home gardens; and
- children with soil pica behavior who may intentionally eat soil.

What are the health effects from too much exposure to arsenic?

The toxic effects of arsenic have been determined mainly from studies of humans exposed to arsenic in food and water, not soil. Those studies show that cancer and non-cancer effects may occur if a person is exposed to a sufficient amount of arsenic.

As part of its responsibility to protect public health, EPA established safe doses of arsenic which will protect people against non-cancer effects. If exposure to soil within the VB/I-70 Site could potentially result in arsenic doses above the established safe doses, then EPA will take action to reduce exposure.

For substances that may cause cancer, EPA does not establish "safe" doses but rather, evaluates the increase in risk of cancer with increasing exposure. EPA's Superfund regulations require cleanup action where the estimated risk of getting cancer is greater than 1 in 10,000. The regulations also establish that risks between 1 in 1,000,000 and 1 in 10,000 are within an "acceptable risk range".

If exposure to arsenic in soil within the VB/I-70 Site could potentially result in cancer risks above 1 in 10,000, then EPA will take action to reduce exposure.

To understand how protective EPA's requirement for Superfund action is, consider that the risk of getting cancer just by living in Colorado is 5,000 in 10,000 for men and 3,333 in 10,000 for women. Even though a risk of 1 in 10,000 is small in comparison, EPA considers any greater risk to be unacceptable.

What are the risks to VB/I-70 residents from exposure to arsenic in soil?

Using the latest scientific methods, EPA determined the potential health risks to residents with average levels of exposure and to residents with "reasonable maximum" levels of exposure at all properties that were sampled. Reasonable maximum exposure levels account for people who have a very high amount of contact with soil.

EPA found that the people with the highest risk of health effects from exposure to arsenic in soil are long time residents who have spent their childhood years and adult years living at the same house and who have regularly eaten vegetables grown in their gardens.

Long time residents who have an average amount of contact with soil, dust, and garden vegetables have estimated risks of getting cancer from exposure to arsenic that are within EPA's acceptable risk range.

However, at properties where arsenic levels are greater than 240 parts per million, cancer risks to long time residents with reasonable maximum exposure are predicted to be unacceptable and cleanup action is required by EPA regulations. EPA's estimates of cancer risk are much more likely to overestimate than underestimate the actual risks to residents in the VB/I-70 Site.

EPA found that if it takes cleanup action to protect long time residents from unacceptable cancer risk, residents and children will be protected from non-cancer health effects as well. This is because the level of arsenic in soil at VB/I-70 that is predicted to cause non-cancer effects is greater than 240 parts per million. The exception is that children with soil pica behavior may theoretically be at risk at arsenic levels below 240 parts per million. These children are of special concern and are considered separately by EPA.

What are the health risks to children who have soil pica behavior?

The amount of soil that soil pica children eat and how often they eat it are not known. Scientists agree that more study is needed to understand the behavior.

However, as a precaution, EPA calculated the theoretical risk of health effects to children with soil pica behavior in VB/I-70 using assumptions based on the few studies that are available. Although uncertain, the calculations suggest that at properties where arsenic levels are greater than 47 parts per million, there might be small areas within the yard that have higher arsenic levels which are of potential concern for children with soil pica behavior. Pica children at these properties may experience nausea or vomiting if they happen to eat a large amount of soil from areas in their yards with the highest levels of arsenic.

There has never been a reported case of acute arsenic toxicity in humans from arsenic in soil. So, the predictions of risk to children with soil pica behavior are uncertain, since they predict a very high risk for which there is no supporting medical evidence. Nevertheless, because of the potential risk, EPA developed and evaluated cleanup options to protect children with soil pica behavior in the VB/I-70 Site.

What are the health effects from too much exposure to lead?

Excess exposure to lead can cause behavioral problems in young children and can affect their ability to learn. Exposure can be evaluated by measuring the level of lead in blood. There are often no outward visible signs of lead poisoning in children which is why blood lead measurements are the best method available to determine when excess exposure is occurring. EPA and the Centers for Disease Control and Prevention consider a level of 10 micrograms of lead in a deciliter of blood (ug/dL) to be the level at which health effects in children may begin to occur. In Superfund, EPA's goal for protecting public health is to ensure that there is no greater than a 5% chance that a child will have a blood lead level that exceeds 10 ug/dL as a result of exposure to lead in soil. EPA will take action to reduce exposure if this goal is not achieved.

What are the risks to VB/I-70 residents from exposure to lead in soil?

EPA policy recommends a two-step process for evaluating risks to children from exposure to lead in soil at Superfund sites. The first step is to determine whether the levels of lead in soil are below the "screening level" of 400 parts per million. If the levels are below 400 parts per million, no further action is required. At the VB/I-70 Site, the measured lead levels are greater than 400 parts per million in many yards. So, EPA proceeded to the second step. As the second step, EPA policy recommends using an EPA mathematical model to predict the blood lead levels of children exposed to lead in the environment at a particular site.

Using the model to predict blood lead levels in children at the VB/I-70 Site is uncertain.

To help understand the accuracy of EPA's model predictions of blood lead levels in children as a result of exposure to soil at VB/I-70, EPA reviewed the available information on measured lead levels in samples of blood taken from children in VB/I-70. CDPHE offered three separate blood lead testing programs to children living in the VB/I-70 site during

the period 1995 through 2000. Although the blood lead testing was not designed to support the VB/I-70 study, the testing supports the following conclusions:

- some children who live within the VB/I-70 Site have high levels of lead in their blood;
- soil is not likely to be the main source of high blood lead levels in children. Exposure to lead from other sources such as paint is likely a concern at many properties in the VB/I-70 Site; and
- some children who live outside the VB/I-70 Site have high levels of lead in their blood similar to those observed in children who live in VB/I-70.

The recommended EPA model and the specific information from measured blood lead levels indicate that 1100 per parts million in soil is protective for this site. Given, however, the other sources of lead that may be present in a child's home, EPA decided to select a more protective standard of 540 parts per million lead in soil.

What cleanup alternatives did EPA and CDPHE consider?

EPA and CDPHE developed cleanup alternatives to reduce the risks to residents at VB/I-70 to acceptable levels. The alternatives are combinations of the following actions:

No Action: EPA has already removed and replaced the soils at 48 properties in the VB/I-70 Site. Under this option, nothing further would be done by EPA.

Soil Tilling/Treatment: This option would address unacceptable risk to children from exposure to lead in soil. This option was not considered as a way to address arsenic. Under this option, surface soils would be tilled to a depth of 6 inches and treated with phosphate and yard features would be restored. The tilling would reduce concentrations of lead by mixing the top few inches of soil with cleaner soil below. The phosphate treatment would reduce the amount of lead in soil that can be absorbed by the body if someone ingests the lead from soil.

Soil Removal and Disposal: This option would address unacceptable cancer risk from exposure to arsenic in soil and unacceptable risk to children from exposure to lead in soil. EPA also considered this as an option for addressing potential risks to children with soil pica behavior. Under this option, soil would be removed to a depth of 12 inches and disposed of offsite at an appropriate facility. The excavated areas would be backfilled with clean soil.

Community Health Program: This program would address the risks to children with soil pica behavior and children exposed to lead from multiple sources. The program would assess risks from any and all potential sources of lead exposure including those which may present a greater risk to children than lead in soil. The program would also provide a way to evaluate the effectiveness of the other options.

There would be 3 components in this program: (1) health education; (2) biomonitoring; and (3) response.

Health education would include both individual and community education to raise awareness about soil pica behavior, multiple sources of lead and arsenic, strategies to reduce soil pica behavior and to reduce or avoid exposure to lead and arsenic from sources other than soil, and the health effects of exposure. This general awareness would help reduce exposure.

As part of education, residents would be taught the importance of **biomonitoring** and would be encouraged to participate in the biomonitoring program. This would be a program to test children to determine the amount of arsenic in their urine and/or lead in their blood. These tests indicate if individual children have recently been exposed to arsenic or lead. The testing would be available at any time of the year but would include a highly publicized, organized program offered once a year, timed to coincide with other community activities at the start of the school year.

If any child were identified with higher than typical exposure to arsenic or lead, they would be included in the **response** program. The first response would be a referral to a physician if the exposure is judged to be a health concern. In all cases, an investigation of the child's house would be conducted to look for soil and non-soil sources of arsenic or lead. If soil was found to be the source of exposure, the most effective way to eliminate the problem would be identified.

Exterior lead paint would be addressed if it was found to be the main source of soil contamination and soil was the main source of a child's exposure to lead. For non-soil related sources of arsenic or lead, residents would be referred to other agencies that may assist them.

The Community Health Program would address as many sources of lead as practicable.

EPA and CDPHE developed five **cleanup alternatives** each of which will address the health risks to varying degrees, using some combination of the above actions. EPA evaluated these cleanup alternatives against nine criteria specified in *Superfund regulations*. These criteria are used by EPA at every Superfund site. The nine criteria are:

THRESHOLD CRITERIA

Alternatives must, at a minimum, meet the first two criteria, called the **Threshold Criteria**, to be retained for further consideration

1. Overall Protection of Human Health and the Environment considers whether or not an alternative provides adequate protection by eliminating, reducing, or controlling unacceptable risks.

2. Compliance with Applicable or Relevant and Appropriate Requirements (ARARs) considers whether or not an alternative will meet all Federal and State standards required by environmental laws or, if not, whether there is justification for waiving the standards.

PRIMARY BALANCING CRITERIA

Alternatives that meet the threshold criteria are next evaluated against the following five criteria known as the **Primary Balancing Criteria**.

3. Reduction of Toxicity, Mobility, and Volume through Treatment indicates EPA's preference for alternatives that include physical or chemical treatment processes to reduce or eliminate the hazardous nature of material, its ability to move in the environment, and the quantity left after treatment.

4. Long Term Effectiveness and Permanence considers the magnitude of public health risk which will remain after each alternative is implemented.

5. Short Term Effectiveness considers the risks that might be posed to the community and workers during the implementation of each alternative and the time it will take each alternative to achieve protection of human health and the environment.

6. Implementability considers the technical and administrative feasibility of implementing each alternative and the availability of the services and materials required during implementation.

7. Cost considers construction costs as well as long term operation and maintenance costs of each alternative. EPA evaluates each alternative by considering whether more costly alternatives provide additional public health benefits for the increased cost.

MODIFYING CRITERIA

The last two criteria are used to evaluate concerns the State and the public may have regarding each alternative.

8. State Acceptance considers whether the State agrees with, disagrees with, or has no comment on EPA's preferred alternative.

9. Community Acceptance considers the concerns or support the public may have regarding each alternative.

The alternatives usually are evaluated against the modifying criteria after all public comments are received on the Proposed Plan. In the case of VB/I-70, CDPHE has already indicated to EPA a preference for Alternative 4. EPA therefore evaluated State Acceptance as part of this Proposed Plan.

EPA will evaluate Community Acceptance of the cleanup alternatives after receiving public comments on this Proposed Plan.

THE FOLLOWING ARE THE CLEANUP ALTERNATIVES EPA CONSIDERED:

Cleanup Alternative 1:

No Action. EPA removed and replaced the soil from 48 yards in the VB/I-70 Site during the years 1998 and 2000. In Alternative 1, no further cleanup action would be done. Alternative 1 would not meet the first criteria, overall protection of human health.

Cleanup Alternative 2:

Alternative 2 is a combination of four actions:

- (1) Soil sampling program for properties not yet sampled;
- (2) Soil tilling with phosphate amendments to treat soil at all properties with lead greater than 540 parts per million;
- (3) Soil removal, off site disposal, and replacement of soil at all properties with arsenic greater than 240 parts per million; and
- (4) Community Health Program.

Either soil removal and disposal or soil tilling and treatment would be required at 202 properties under Alternative 2. Of these properties, 113 require removal because of arsenic levels and 89 require tilling and treatment because of lead levels. The community health program would be effective in addressing the theoretical health risks to children with soil pica behavior and the health risks to children exposed to lead from many sources. There is some uncertainty about whether the treatment of lead in soil would be effective. More testing would be required to determine exactly how the treatment process would work. So, this alternative would take more time to implement, making it less effective in the short term.

There are short-term risks of accidents occurring due to the increase in truck traffic during construction. There is less short term risk in Alternative 2 when compared to Alternatives 3, 4, and 5 since the soil at 89 properties would not need to be removed and transported off the site. EPA estimates that Alternative 2 will cost \$10.6 million.

Cleanup Alternative 3:

Alternative 3 is a combination of three actions:

- 1) Soil sampling program for properties not yet sampled;
- 2) Soil removal, off site disposal, and replacement of soil at all properties with arsenic greater than 240 parts per million and/or lead greater than 540 parts per million; and
- 3) Community Health Program.

Soil removal and disposal would be required at approximately 202 properties under this alternative. Of these properties, 105 require removal because of arsenic levels, 8 require removal because of arsenic and lead levels, and 89 require removal because of lead levels.

Alternative 3 is very similar to Alternative 2 but includes soil removal and disposal, rather than soil tilling, at properties where lead levels exceed 540 parts per million. Since there is no treatment process to design, Alternative 3 could be implemented more quickly. Short-term risks of accidents from increased truck traffic are higher than Alternative 2 and lower than Alternatives 4, and 5. EPA estimates that Alternative 3 will cost \$11.1 million

Cleanup Alternative 4: **The Preferred Alternative**

Alternative 4 is a combination of three actions:

- (1) Soil sampling program for properties not yet sampled;
- (2) Soil removal, off site disposal, and replacement of soil at all properties with arsenic greater than 128 parts per million and/or lead greater than 540 parts per million; and
- (3) Community Health Program.

Alternative 4 is very similar to Alternative 3 but includes soil removal and disposal at properties where arsenic levels exceed 128 parts per million. CDPHE requested that EPA consider a cleanup alternative in which 128 parts per million arsenic is the trigger for soil removal.

Cleanup Alternative 4 (Cont.):

Soil removal and disposal will be required at 403 properties under Alternative 4. Of these properties, 306 require removal because of arsenic levels, 31 require removal because of both arsenic and lead levels, and 66 require removal because of lead levels.

Short term risks of accidents from increased truck traffic are higher in Alternative 4 than Alternatives 2 or 3 due to the greater number of yards that would be replaced. Alternative 4 would take a longer time to complete than Alternative 3. The alternative achieves State acceptance. EPA estimates that Alternative 4 will cost \$17.5 million.

Cleanup Alternative 5:

Alternative 5 is a combination of two actions:

- (1) Soil sampling program for properties not yet sampled; and
- (2) Soil removal, off site disposal, and replacement of soil at all properties with arsenic greater than 47 parts per million and/or lead greater than 208 parts per million.

Soil removal and disposal will be required at 2,122 properties under Alternative 5. Of these properties, 384 require removal because of arsenic levels, 479 require removal because of arsenic and lead levels, and 1259 require removal because of lead levels. 208 parts per million lead is from the recommended EPA model, run without updated information. Removal of soil alone, without a community health program, would not be as effective as Alternatives 2, 3 and 4 in addressing the risks to children with soil pica behavior and children who are exposed to lead from sources other than soil. The non-soil sources of lead may present a greater risk to children than lead in soil.

Alternative 5 would have the highest short-term risks of accidents from increased truck traffic and would take the longest time to complete due to the increased number of yards that would be replaced. Of all the alternatives, Alternative 5 would take the longest time to complete. This alternative achieves State acceptance. EPA estimates that Alternative 5 will cost \$61 million.

How is EPA considering Environmental Justice (EJ) concerns?

EPA and CDPHE recognize that the VB/I-70 Site is an EJ site because the community is predominantly low income and minority and is disproportionately affected by environmental impacts from many sources including industry, other Superfund sites, and major transportation corridors. As a result EPA took several actions.

All aspects of the Superfund activities were opened up to community representatives, recognizing that justice means having a voice in decisions that affect their lives. EPA conducted project management and technical meetings at locations in the VB/I-70 community so that anyone interested could participate in the discussions. Community representatives helped to design the soil collection program and advised EPA on ways people come in contact with soil in the VB/I-70 neighborhoods.

The site boundaries were established based on EJ concerns that the integrity of neighborhoods be

maintained and that entire neighborhoods be treated equally.

The preferred alternative includes a community health program which will address sources of lead exposure that are not generally considered at other Superfund sites and includes public health actions. We are considering this program because this is an EJ site.

Community Participation

EPA mailed this Proposed Plan to all VB/I-70 residents. During the public comment period for this Proposed Plan, EPA and CDPHE will also provide information about the VB/I-70 Site to the community through public meetings and information placed in several information repositories throughout the community. Please refer to the last page of this fact sheet for details. EPA and CDPHE encourage the community to gain a full understanding of the VB/I-70 cleanup proposal.

Table 1 summarizes the comparison of the five cleanup alternatives against the Superfund evaluation criteria.

Table 1: Comparison of Remedial Alternatives Against the Superfund Evaluation Criteria

Evaluation Criterion	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Notes
1. Overall Protection of Human Health and Environment	○	◐	●	●	◐	The community health program is a component of Alternatives 2,3 and 4, providing greater overall protection. Since Alternative 5 doesn't include a community health program, it does not address soil pica behavior in children and/or children exposed to lead from non-soil sources that may present a greater risk than soil.
2. Compliance with ARARs		●	●	●	●	Alternatives 2,3,4 and 5 are expected to meet ARARs.
3. Reduction of Toxicity, Mobility, and Volume through Treatment		◐	○	○	○	Neither Alternative 3, 4 nor 5 include treatment. Alternative 2 includes a phosphate treatment of soil.
4. Long Term Effectiveness and Permanence		●	●	●	◐	Alternative 5 will not address soil pica behavior and children exposed to lead from non-soil sources that may present a greater risk than soil.
5. Short Term Effectiveness		◐	●	◐	○	Alternatives which include a greater number of yards to be removed have higher short term risks because of increased truck traffic in the community.
6. Implementability		◐	●	●	●	Soil tilling in residential yards (Alternative 2) will likely be more difficult to implement than soil removal.
7. Cost Effectiveness		◐	●	◐	○	Alternatives 4 and 5 do not provide greater overall protection for the increased cost.
8. State Acceptance	○	○	○	●	●	CDPHE prefers Alternative 4

●
 BETTER

◐ → ○
 WORSE

The Preferred Alternative

EPA and CDPHE selected **Alternative 4** as the preferred cleanup alternative. Although Alternatives 3 and 4 provide similar overall protection of health, Alternative 4 best meets the 8 evaluation criteria considered by EPA. Based on the information available at this time, EPA and CDPHE believe the Preferred Alternative would be protective of human health, would meet all Federal and State standards required by environmental laws, would be effective in the long term, would be able to be implemented in the VB/I-70 community, and best achieves State Acceptance.

EPA will remove the top 12 inches of soil from yards where arsenic levels exceed 128 parts per million and/or lead levels exceed 540 parts per million. The soil will be transported off the VB/I-70 Site for disposal at an appropriate facility. The yards will be backfilled with clean soil and yard features restored. EPA will make every effort to sample yards that have not yet been sampled and these yards will be cleaned up as necessary. EPA estimates that 403 yards will require this cleanup action.

Children who live in VB/I-70 will be further protected by a community health program with the following components:

- health education to raise overall community awareness about soil pica behavior and childhood exposure to lead from all sources. The education will focus on strategies to reduce or avoid exposure to lead and soil pica exposure to arsenic, and the health effects of exposure;
- a testing program to measure levels of lead in children's blood and levels of arsenic in children's urine to find out the level of actual soil pica exposure to arsenic and actual exposure to lead and to identify children with higher than normal exposures; and
- an investigation and response program to identify soil and non-soil sources of lead and arsenic at homes of children with greater than normal exposure, to address the source of lead or arsenic exposure for an individual child, and to refer people with excessive exposure to arsenic or lead to a health care provider.

MARK YOUR CALENDAR: OPPORTUNITIES FOR PUBLIC INVOLVEMENT Public Comment Period: May 20, 2002 – July 19, 2002

Public Meetings:

Thursday, June 20, 2002

6:30 p.m. to 8:30 p.m.

Harrington Elementary School

Saturday, June 22, 2002

10:00 a.m. to 12:00 p.m.

Swansea Recreation Center

Saturday, June 29, 2002

10:00 a.m. to 12:00 p.m.

St. Charles Recreation Center

Information Repositories

on the World Wide Web at

<http://epa.gov/region8/vbi70>

Cross Community Coalition

2332 East 46th Avenue

Valdez-Perry Library

4690 Vine Street

Ford Warren Library

2835 High Street

EPA Records Center

999 18th Street, 3rd Floor, South Tower

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